

Vegetation Management, Erosion Control, and Revegetation Plan
for the
Paradise Area Reinforcement Project

Prepared for
Pacific Gas and Electric Company

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INTRODUCTION

Pacific Gas and Electric Company's Paradise Area Reinforcement Project involves construction of 6.1 miles of 115 kilovolt (kV) transmission line from the Table Mountain-Butte 115 kV powerline to the Paradise substation, and installation of related operational equipment at the substation. The 115 kV powerline will replace the existing 60 kV Paradise Tap Number 1 and approximately half of the new powerline will be constructed within the same alignment as Tap Number 1. The reinforcement project is needed because the existing electrical system that serves Paradise and surrounding communities no longer has the capacity to supply power during peak loads and emergencies. Projections show that beginning in the summer of 2001, the system will not be adequate for normal electric loads as well.

Pacific Gas and Electric Company has received a Permit to Construct the Paradise Area Reinforcement Project from the California Public Utilities Commission (CPUC). The Mitigated Negative Declaration for the project requires a number of mitigation measures to be completed before construction, as well as implemented during construction. This Vegetation Management, Erosion Control, and Revegetation Plan addresses the mitigation requirements associated with clearing, erosion control, and revegetation activities, and provides the framework under which Pacific Gas and Electric Company crews and/or contractors will conduct these operations for this project.

This plan includes three sections related to construction and maintenance of the Paradise Area Reinforcement Project, including:

- **Tree and Vegetation Removal Plan:** This plan discusses tree and vegetation removal techniques and issues and mitigation that will be implemented during clearing activities for the Paradise Area Reinforcement Project.
- **Erosion Control Plan:** This plan discusses temporary and permanent sediment and erosion control measures that will be implemented during construction of the Paradise Area Reinforcement Project to minimize sediment transport off the Pacific Gas and Electric Company right-of-way and to reduce the potential for damage to adjacent resources.
- **Revegetation Plan:** This plan discusses the specific revegetation procedures and specifications that will be implemented following construction of the project to successfully revegetate and stabilize the powerline right-of-way. The revegetation plan also addresses tree planting that will be conducted along the Skyway and Paradise Memorial Trailway portions of the project route.

COORDINATION

This plan has been prepared in consultation and coordination with representatives from the Town of Paradise, Butte County, and the CPUC. Pacific Gas and Electric Company will be responsible for distributing copies of this plan to all appropriate agencies and construction personnel, as well as maintaining coordination and communication with the regulatory agencies throughout the project.

ENVIRONMENTAL TRAINING

All workers involved in the project will attend an environmental training program to discuss proper clearing and grading methods, general erosion and sediment control requirements, and the importance of protecting sensitive resources on the project. Crews specializing in erosion control tasks will receive additional training on proper installation and maintenance of erosion and sediment control measures.

TREE AND VEGETATION REMOVAL PLAN

INTRODUCTION

The guidelines outlined in this plan were designed to meet the California Department of Forestry (CDF) requirements and protect biological and soil resources, as well as adjacent vegetation and properties. This plan describes vegetation and tree removal activities along the entire project route with specific emphasis on Segments 4 (along Skyway) and 5 (paralleling the Paradise Memorial Trailway). Due to the urgent need for this project, Pacific Gas and Electric Company intends to begin construction of the project in early 2001 in order to meet a June 2001 operational date. The Final Mitigated Negative Declaration states that, "Where feasible, tree trimming and removal of shrubs and trees should be avoided during the nesting period of March through July." Therefore, Pacific Gas and Electric Company proposes to perform the majority of its clearing activities during January and February 2001.

Pacific Gas and Electric Company has incorporated CDF's requirements for vegetation and tree removal activities during the months identified above. In addition, Pacific Gas and Electric Company has reviewed the Town of Paradise Tree Ordinance and consulted with the Town's representatives to incorporate local requirements and mitigations wherever feasible. Due to the likelihood of saturated soils during the winter, CDF is restricting heavy equipment in areas with merchantable timber. Therefore, Pacific Gas and Electric Company will conduct the majority of tree removal using light vehicles as described below.

TREE AND VEGETATION REMOVAL GOAL

Specific goals of the Tree and Vegetation Removal Plan include:

- Protect adjacent properties, vegetation, and resources.
- Ensure safe construction and operation of the new powerline.
- Prevent tree limbs and windfall from hitting the powerline.
- Minimize tree removal along Skyway and the Paradise Memorial Trailway to the extent possible.
- Make every effort to trim or top trees in areas where complete removal is not required in order to maintain visual screening and the aesthetic qualities of the area.
- Minimize potential impacts to the Paradise Memorial Trailway surface and surrounding areas.
- Avoid vegetation removal or ground disturbance immediately adjacent to watercourses.

- Revegetate the right-of-way along the Paradise Memorial Trailway with low growing, visually appealing trees and shrubs that help screen powerline poles and maintain the forested setting without interfering with powerline safety and performance.
- Improve the reliability of electrical service, reduce the fire potential, increase public safety, and reduce long-term costs of vegetation maintenance along the powerline route.

VEGETATION CLEARING – AREAS AFFECTED

The Paradise Area Reinforcement Project powerline route parallels existing road, powerline, and other utility corridors for the entire route. Because of this, many of the larger trees that may need to be removed as a part of this project have already been topped or trimmed as a part of normal right-of-way vegetation maintenance of the existing powerlines.

In order to provide safe construction and operation of the new powerline, tree and vegetation clearing will generally be required in the following areas:

- All vegetation within 7.5 feet on either side of the centerline will be removed to a maximum height of 6 inches, where feasible. However, Pacific Gas and Electric Company will avoid clearing vegetation to the extent possible to minimize the visual effects of the project.
- All vegetation within 10 feet of each pole location will be removed to a maximum height of 6 inches.
- All existing trees not designated for removal that are within the right-of-way, but outside the 15-foot strip (7.5 feet either side of the centerline), and are taller than 10 feet will be topped to 10 feet.

The centerline and pole locations will be staked by Pacific Gas and Electric Company prior to initiation of clearing to identify specific vegetation removal areas. Trees that will be removed have been marked with blue paint by Pacific Gas and Electric Company's professional forester. Trees that will be trimmed or topped have been clearly marked with a green "T." It should be noted that there are markings on vegetation at various locations along the Paradise Memorial Trailway that are not related to this project.

Pacific Gas and Electric Company's foresters and engineers have surveyed the trees along the right-of-way and within Paradise's town limits. During the surveys, they attempted to minimize the number of trees that would be removed, and directional trimming or topping were recommended wherever feasible. Of the total number of trees larger than 10 inches in diameter at breast height (dbh) within Sections 4 and 5 of the powerline route, approximately 178 trees will be removed and 79 either topped or trimmed.

Most of the tree and vegetation trimming and removal will be done during January and February 2001. However, after the powerline conductors are installed, Pacific Gas and Electric Company foresters and operations staff will review the right-of-way to determine the spacing between the

powerlines and vegetation, and whether additional trees must be removed and/or trimmed to ensure safe operation of the powerline. This additional work will not be extensive. If it occurs during bird nesting season, mitigations will be implemented as described in the project's Final Mitigated Negative Declaration.

TREE REMOVAL GUIDELINES

Trees and vegetation along the powerline route will be removed according to the following guidelines.

Clearing Activities

During the wet weather and soil conditions expected during January and February, clearing activities will use the following techniques and equipment.

- Clearing equipment will be restricted to pickups, chippers and chip-hauling trucks, and hand tools.
- Heavy equipment will not be used where merchantable timber is present. Therefore, skidding, decking, loading, and timber hauling will not be allowed.
- Trees will be felled by hand and will either be left in place, chipped, or cut up and removed from the right-of-way by hand and pickups. In the areas south of Skyway, trees may be limbed and left piled along the right-of-way for wildlife habitat.
- Heavy equipment may be used where there is no merchantable timber (except along the Paradise Memorial Trailway, north of Neal Road), and where the powerline route parallels an existing roadway.

Pacific Gas and Electric Company will make every effort to preserve trees within the right-of-way by trimming if removal of the entire tree is not necessary. This will contribute to a feathered effect along the right-of-way since specific areas (e.g., immediately adjacent to the poles) do not need to be cleared for the entire width of the right-of-way. In other areas (e.g., where there is a long pole span), trees will need to be removed or topped within the entire right-of-way width to ensure safe operation of the powerline.

- Tree stumps along Skyway and the Paradise Memorial Trailway will be cut off slightly below ground level.
- Clearing operations will be limited to normal work hours as defined in the Town of Paradise's general construction noise ordinance.

Notifications

Pacific Gas and Electric Company will notify property owners within 300 feet of the powerline right-of-way of tree clearing operations at least 72 hours beforehand. The notice will describe the

scheduled operations and include a contact number that the property owners can call if they have questions or concerns during construction.

While clearing operations are taking place adjacent to the Paradise Memorial Trailway, signs will be posted to warn trail users of project activities near the trail. To ensure public safety during clearing operations, sections of the trail may be closed for short periods of time. Signs will be installed as necessary to reroute cyclists and pedestrians around potentially hazardous activities.

Protection of Resources During Clearing Operations

Before the start of clearing operations, Pacific Gas and Electric Company biologists will identify any trees marked for trimming, topping, or removal that possess cavities that may house pallid bats. Any trees that may potentially provide habitat will be inspected for use by this bat species. In the unlikely event that pallid bats are noted using trees that will be affected by the project, Pacific Gas and Electric Company will consult with the California Department of Fish and Game regarding appropriate mitigation measures.

Two small clusters of valley elderberry are located within 20 feet of each other and within the project right-of-way along the Paradise Memorial Trailway. Pacific Gas and Electric Company will protect these elderberry clumps during clearing operations by installing exclusion fencing around them, installing signs noting the protected area, and by training project workers of the required elderberry protection measures.

During clearing operations, Pacific Gas and Electric Company will take special precautions to avoid damaging adjacent trees and properties. Trees will be felled within the right-of-way to avoid damaging adjacent properties. Every attempt will be made to avoid felling trees onto the Paradise Memorial Trailway to avoid damaging the bike path surface. The use of lighter vehicles (pickups and chip-hauling trucks) and broadcasting chips onto the right-of-way will reduce the potential for damage to the path. Pacific Gas and Electric Company has committed to repairing any project-related damage to the surface of the trail as appropriate following construction of the project.

Access for Clearing Operations

Clearing equipment (pickups, chippers, and chip-hauling trucks) and workers will access the right-of-way along public paved roadways for much of the project route. In areas where the project parallels existing roads, lane closures along these sections of these roads may be implemented by Pacific Gas and Electric Company clearing crews. These lane closures will be coordinated with the Butte County Transportation Authority, the Paradise Unified School District, and the Town of Paradise, as appropriate.

At the very southern end of the project, a section of the powerline will be constructed cross-country, paralleling an existing gas pipeline right-of-way. Similarly, north and west of Neal Road, the powerline route continues cross-country, paralleling an existing 60 kV powerline right-of-way. Access for clearing equipment along these sections will be from the existing pipeline or

powerline access roads and along the powerline right-of-way. The project will cross several ephemeral streams along these sections. In the event that access over these drainages is required, equipment and vehicles will cross these drainages on existing bridges or using timber mats that will span over the flowing water. These timber mat bridges will be located at existing ford locations to prevent unnecessary vegetation removal or disturbance in the riparian zones.

Along the Paradise Memorial Trailway section, pickups and chippers will access the powerline right-of-way along the existing trailway. The light vehicles used for the clearing operations are not expected to cause significant damage to the trailway.

Disposal of Vegetation and Trees

The majority of the trees and vegetation cut along the project route will be chipped and broadcast, or will be felled, limbed, and left in place along the powerline right-of-way. This will reduce the amount of timber and slash hauling, and potential damage to the right-of-way or associated drainages. Where applied, broadcast wood chips will serve to reduce erosion potential and reduce the growth of noxious weeds and other undesirable plant species. The chips will also serve as an effective mulch that will retain moisture and support the plantings and vegetation replaced after construction is complete. If the chips are to be broadcast some time after chipping operations, they will be left in small or broad flattened piles to reduce their visibility and minimize the risk of fire.

Along the Paradise Memorial Trailway and Skyway, trees that are removed during clearing operations will primarily be chipped. The chips generated from this operation may be disposed of as follows:

- hauled away and disposed of off the project site;
- broadcast in-place where they are generated; or
- hauled or stockpiled for dispersal at specific sites to help support restoration plans (spread over the right-of-way for weed control, or utilized for mulch around planted trees).

After consulting with the Town of Paradise regarding their long-term weed control goals, Pacific Gas and Electric Company identified three primary areas along the Memorial Trailway where wood chips produced during the clearing operation will be spread. The chips will be spread on both sides of the Trailway at a depth of four to six inches to inhibit weed growth.

These disposal areas include:

- Neal Road to Buschmann Road
- Elliott Road to the Substation
- The vicinity of the Substation

In areas where wood chips are spread on site along the Trailway the chips will:

- not be placed in drainage ditches where they may float and clog storm drains;
- not be placed on areas of steep slopes (e.g. 3:1), and
- to the extent possible, not contain broom.

Broom removed during cleanup operations will be chipped separately and hauled to the local waste transfer station.

There are several large trees along the powerline route that are too large to handle and remove solely by hand labor. In these situations, where these trees need to be removed, the tree will be cut during clearing operations, but will not be removed until later in the spring when drier soil conditions allow heavy equipment access to the right-of-way.

EROSION CONTROL PLAN

INTRODUCTION

The Erosion Control Plan describes measures Pacific Gas and Electric Company and its contractors will take during construction of the Paradise Area Reinforcement Project to minimize impacts to soil and water resources within and adjacent to its right-of-way. Although the amount of soil disturbance and the potential for erosion on the project is expected to be minimal, this plan addresses the measures to be implemented, if warranted by field conditions and as directed by the Environmental Inspector.

The short-term objectives of this plan are to conserve and protect topsoil, reduce erosion, control sedimentation, protect water quality and aquatic resources, and minimize impacts to adjacent property and resources. The long-term objectives of this plan include restoration of topography, soils, and vegetation to preconstruction conditions. Monitoring will be conducted throughout construction, operation, and maintenance phases to evaluate the success of erosion control and revegetation efforts.

DESCRIPTION OF WORK

Vegetation will be cleared at each new pole location to facilitate augering and construction of the pole foundation. Auger spoil will be placed within the cleared work area. If necessary, the spoil will be used to create a horseshoe-shaped containment berm on the downslope side of the footing to prevent any liquid concrete from leaving the construction right-of-way. Excess concrete will be removed and recycled, or transported to an approved landfill for disposal. Following installation of each new pole, auger spoil will be:

- spread around the base of the pole,
- used to fill in foundations as necessary, or
- hauled to an approved disposal site.

A minimal amount of grading may be required at some pole sites to create a level surface for augering activity and to support pole installation equipment. Access roads will be graded as needed to provide safe access for construction crews and equipment.

GENERAL EROSION AND SEDIMENT CONTROL CONSIDERATIONS

The following general environmental protection measures will be implemented to minimize the potential for erosion and sedimentation during construction and operation of the Paradise Area Reinforcement Project:

- All personnel, vehicles, materials, and equipment will remain in designated construction work areas and on approved access roads.
- Topsoil will be salvaged during grading (where possible) and separated from subsoil to prevent mixing that could potentially inhibit revegetation efforts of the right-of-way.

- Clearing and other soil and vegetation disturbance will be limited to the minimum area required for safe construction operations.
- Temporary erosion and sediment control devices will be installed where necessary after initial soil disturbance and will be maintained throughout construction and restoration.
- Permanent erosion control measures will be installed immediately following completion of pole installation, stringing of new conductors, and restoration of grade contours.
- An Environmental Inspector will periodically inspect the project area throughout construction to verify and document compliance with the environmental requirements.

EROSION AND SEDIMENT CONTROL METHODS

Temporary erosion and sediment control measures are designed to reduce erosion and the transport of sediment, and to protect sensitive resources during construction. Temporary erosion control measures will be installed where necessary within five days of significant soil disturbance and will be maintained throughout the project. Erosion control methods implemented along the route will depend on site-specific conditions encountered on the right-of-way. In general, temporary erosion control measures will be removed during cleanup activities; however, they may be left in place until successful revegetation has occurred and the right-of-way has been stabilized.

The following sections review materials, installation requirements, and performance criteria for temporary and permanent erosion and sediment control measures.

Sediment Barriers

Temporary sediment barriers (e.g., straw bales, silt fence, etc.) are designed to reduce the velocity of water flow and intercept suspended sediment conveyed by sheet flow, while allowing runoff to continue down gradient. Temporary sediment barriers will be installed as necessary at the following locations:

- across the downslope side of pole sites where the disturbed area is immediately adjacent to paved roadways, flowing drainages, wetlands, and other sensitive resources;
- where the natural topography may direct disturbed sediment into sensitive resource areas;
- across or along access roads where construction disturbance could cause sediment transport downslope to a sensitive resource area; and
- where they are requested by the Environmental Inspector to prevent significant sediment transport off of the right-of-way or into adjacent resource areas.

Straw Bales

A row of tightly abutted, weed-free straw bale sediment barriers will be installed perpendicular to the runoff direction with the ends turned upslope. The barriers, typically one bale high, are placed in a 4-inch-deep trench on the fiber-cut edge (ties not in contact with the ground), and anchored securely with two wooden stakes driven through each bale. Soil will be placed and compacted along the toe of the uphill side of the straw bale barrier. If a trench cannot be

excavated due to the presence of rocky substrate, the straw bale will be installed by other effective means.

Silt Fences

Silt fence, composed of strong commercial filter fabric with sufficient strength to prevent failure, will be installed as necessary. The height of a silt fence will not exceed 36 inches above ground level. The fabric will be cut from a continuous roll of fabric (spliced only at the support posts), with a minimum overlap of 18 inches, and with both ends attached to the posts with staples or wire. Support posts will be installed a maximum of 10 feet apart. The bottom edge of the silt fence will be installed in a trench excavated approximately 4 inches wide by 6 inches deep and backfilled with compacted soil. If a trench cannot be excavated due to on-site constraints (e.g., rock substrate), the bottom edge of the fence will be secured by other effective means.

Diversions

Water diversions (e.g., waterbars, straw wattles, etc.) are designed to reduce the velocity of water flow and carry water across and slightly down slope to a vegetated or otherwise stable area (e.g., rock substrate), away from disturbed soil with erosion potential.

Waterbars

Waterbars may be utilized in various forms (e.g., rolling dips on access roads, driveable berms across travel lanes, waterbars on slopes, etc.) throughout construction and after final grade restoration. Earthen waterbars will be constructed of existing suitable material and compacted to increase durability. The Environmental Inspector will determine the need and location of waterbars based on on-site field evaluations of the right-of-way. The installation angle will be two to eight percent downslope and will extend to at least the edge of the disturbed construction area within the right-of-way boundary.

Straw Wattles

Installation of straw wattles may be preferred to waterbars in areas not accessible by grading equipment. Wattles will be installed in a two-inch deep trench and butted together or overlapped where more than one is used. Eighteen-inch wood stakes will be driven through the wattle at three-foot intervals to secure the wattles.

ROAD MAINTENANCE

Any soil that is tracked onto paved roadways will be removed from the road as soon as it is safely possible.

STORM DRAIN INLET PROTECTION

Pacific Gas and Electric Company will install appropriate storm drain inlet protection where construction occurs near urban storm drains as directed by the Environmental Inspector.

Measures taken may include the use of straw wattles, sandbags, or concrete blocks with gravel and filter fabric.

MULCHING

Mulch consisting of weed-free straw, wood chips, or an approved equivalent may be applied to protect seeded areas or to temporarily stabilize disturbed sites prior to seeding. Mulch reduces the potential for erosion by reducing rainfall impact and movement of soil particles, and by decreasing the velocity of downslope surface flow. Mulch will be applied to disturbed soils and slopes adjacent to protected resources as requested by the Environmental Inspector.

MONITORING AND MAINTENANCE

Construction Monitoring

Construction personnel will routinely inspect temporary erosion control structures in active construction areas, where equipment is being operated, and immediately following rainfall events throughout the project.

The Environmental Inspector will periodically inspect temporary erosion controls and document observations in a Daily Environmental Inspection Report. The Environmental Inspector will monitor regional National Weather Service reports and forecasts for storm advisories. Temporary erosion control devices will be installed or repaired immediately when heavy precipitation is forecasted.

Postconstruction Monitoring

Erosion control devices left in place after construction and restoration will be monitored and maintained until revegetation of the right-of-way is successful. Pacific Gas and Electric Company will conduct follow-up surveys to evaluate the success of restoration and revegetation, as detailed in the Revegetation Plan.

REVEGETATION PLAN

INTRODUCTION

This Revegetation Plan outlines methods to re-establish vegetation on areas disturbed by construction, reduce the spread of noxious weeds, and minimize erosion and sedimentation after construction. Ground disturbance from the project will be minimal and limited primarily to the immediate areas around pole installations, laydown areas, and conductor pull sites. It is unlikely that disturbance in riparian areas will be necessary. However, if the project does disturb riparian areas, the areas will be stabilized and revegetated as described by this plan.

Generally, seeding and planting efforts in disturbed areas will adhere to the following guidelines:

- Only areas that have been disturbed by powerline construction and require immediate soil stabilization will be re-seeded.
- Areas disturbed along the Paradise Memorial Trailway will be seeded with the Paradise Trailway seed mix in the fall following construction.

Tree and shrub plantings will be installed along the Paradise Memorial Trailway in order to ensure aesthetically pleasing vegetation that adds color, screening, and shade along the Trailway. After construction, disturbed areas along the remainder of the project route (between the 115 kV source and the Paradise Memorial Trailway) will either be seeded with the seed mix noted below (see Table 1), or will be allowed to revegetate naturally.

SCHEDULE

Seeding with native perennial grass mixes will be completed from mid October to early November 2001. Woody plants will be planted from late October to late November 2001. Maintenance, including weed control, minimal irrigation, plant protection, and any remedial or supplemental work will occur in 2002 and 2003.

SEEDING

Seedbed Preparation

After construction and before seeding, disturbed contours will be restored and all construction debris will be removed. If soil has been compacted in areas disturbed by construction activities, the ground surface will be scarified immediately before seeding to reduce compaction and to create a favorable seedbed.

Table 1: Revegetation Seed Mixes

Seed Mix	Common Name	Species	Pounds/acre (Pure Live Seed)
Upland Mix	Blue wild-rye	<i>Elymus glaucus</i>	16.6
	Purple needlegrass	<i>Nassella pulchra</i>	3.6
	Sandberg bluegrass	<i>Poa secunda</i>	1.0
	Spanish clover	<i>Lotus purshianus</i>	9.8
Riparian Mix	Creeping wild-rye	<i>Leymus triticoides</i>	21.4
	Slender hairgrass	<i>Deschampsia elongata</i>	21.0
	Meadow barley	<i>Hordeum brachyantherum</i>	20.0
Paradise Memorial Trailway Mix	Stillman's or Lemmon's needlegrass	<i>Achnatherum stillmanii (or A. lemmonii)</i>	13.0
	Sandberg bluegrass	<i>Poa secunda</i>	2.0
	Hanford or California melica	<i>Melica hanfordii (or M. californica)</i>	4.0
	Bottlebrush squirreltail	<i>Elymus elymoides</i>	8.0

Seed Mixes

Table 1 describes native seed mixes that will be applied in the corresponding existing vegetation communities.

Seeding Methods

Each bag of seed will be properly labeled certifying the species, the percentage of seed of each species, the percent germination of each species, purity of seed, and inert ingredients.

Each seed mix will be uniformly applied at its specified Pure Live Seed application rate as indicated in Table 1. Due to the limited size of the areas disturbed by the project, the majority of the seeding will be completed by hand. Seed will be applied using a Truax or equivalent hand-cranked whirlybird-style seeder designed to broadcast fluffy and awned seeds.

Seed applied directly on bare soil will be lightly raked into the soil surface. In areas where straw blankets are installed, seed will be broadcast before the blanket is installed. However, if coir blankets are installed in an area, seed will be broadcast after the blanket is installed. In areas where straw mulch is required, seed will be applied after the mulch is spread, but before crimping.

Soil Amendments

Biosol 7-2-3 fertilizer or an equivalent will be uniformly applied over the seeded area at an approximate rate of 400 pounds per acre.

Revegetation Success Criteria

In each disturbed area seeded with native grass seed mixes, 80 percent cover is required at the end of the first growing season. Additional seed will be applied in areas that are bare or that have not achieved an adequate vegetation density, as determined by the restoration consultant.

TREE AND SHRUB PLANTINGS

Plant Material

Plantings will primarily consist of one-year old seedlings of native woody plant species grown from seeds collected in areas with similar conditions (e.g., elevation, climate, etc.). Native tree species will include western dogwood, redbud, vine maple, western hazelnut, and toyon. In the event that seedling germination and propagation are unsuccessful and alternate sources for the seedlings are not available, it may be necessary to substitute some of the plant species with other available, locally-adapted species. In addition, direct seeding of select species may be implemented if adequate quantities of seedlings are not available from local nurseries. Plants will be stored and cared for at the nursery where they are propagated until they are installed along the Paradise Memorial Trailway.

Planting Methods

Planting locations will be identified along the Paradise Memorial Trailway by Pacific Gas and Electric Company's restoration consultant. Colored flags will be installed to identify where each species will be planted along the trailway. Once the planting scheme has been laid out along the Trailway, the project's restoration consultant will coordinate with the Town of Paradise to finalize the planting layout.

Specific planting instructions and specifications are identified in the Erosion and Restoration Specification (see Attachment B). In general, the restoration contractor will complete the following steps during the planting process.

- A planting pocket will be dug to create a benched surface for installing the planting collar at a depth and width that would allow the soil level in the collar to be at approximately the same elevation as the natural grade.
- The planting collar will be inserted into the planting hole and positioned so that the soil line within the collar (approximately 1.75 to 1.5 inches from the top of the collar) is at approximately at the same elevation as the natural grade.
- The collar will be stabilized by backfilling with the pulverized soil.
- Once the seedling is installed, soil will be placed around the seedling and tamped in the planting hole and the collar. In the event that direct seeding is required, the seeds will be placed at a proper depth of approximately .25 to .75 inches below the soil surface within the collar.
- Where necessary to reduce depredation on the seedling, a protective screen cylinder (a piece of 0.5 inch mesh chicken wire wrapped around the top three and a half inches of the planting collar and approximately 18 inches high) will be secured in place by mounding soil against the base of the screen cylinder.
- A three-foot square piece of weed control fabric will be installed and stapled into place around the planting collar.
- The weed control fabric will be covered with a three to four-inch layer of native mulch.

Soil Amendments

Approximately one teaspoon of Osmocote 14-14-14 fertilizer will be placed in the bottom of each planting hole at the time of seeding and planting.

Plant Protection and Maintenance

Deer repellents may be used if necessary to reduce browse damage to the seedlings. Only repellents approved for use in Butte County will be applied following the manufacturer's

recommended methods. Repellents will be reapplied as needed during the plant maintenance period.

Supplemental watering will be conducted as needed during the summer following planting to help ensure successful plant establishment. Irrigation will consist of applying minimal amounts (two inches applied in the planting collar) of water to the planted species. Supplemental watering will be applied as necessary according to the schedule (approximate dates) detailed in Table 2 below.

Table 2: Supplemental Watering Schedule for 2002

Month	Day(s)
May	1, 15, 29
June	19
July	10, 31
August	21
September	11, 29

Replanting Success Criteria

Pacific Gas and Electric Company will maintain the planted or seeded native shrubs and trees with a goal of successfully establishing 70 percent of the plantings by the end of the second growing season. Replacement plantings will be installed as necessary to achieve the above success rate. The specific number of additional plants to be installed will be determined by the restoration consultant based on an evaluation of the success rate and condition of the plantings during the fall surveys. The most successful species may be planted as remedial plantings.

NOXIOUS WEED CONTROL

A number of noxious weeds are abundant along the Paradise Area Reinforcement Project route. Yellow star-thistle is abundant along the entire southern section of the project route. Himalayan blackberry is present in a number of the drainages crossed by the project, and two species of broom are abundant in scattered areas along the Paradise Memorial Trailway. The purpose of the project's weed control efforts is to prevent the spread of these noxious weeds as a result of project activities. The weed control efforts identified in this plan were discussed with the Butte County Agriculture Commission and the Town of Paradise.

To prevent the introduction of new weed species to the project area, all construction equipment used on the project will arrive on-site clean and free of loose soil. Once construction is started, equipment-cleaning stations will be established at appropriate locations along the project route to clean equipment and vehicles used on the project in weed-infested areas. These cleaning stations will consist of water tanks with high-pressure wash hoses to clean loose soil from the equipment or vehicles prior to moving to areas where the noxious weeds are not present. Vehicles that remain along the public roadways or on the Paradise Memorial Trailway will not require washing.

Yellow Star-thistle

Yellow star-thistle is ubiquitous along the southern portions of the project route. During initial inspection activities, the project's Environmental Inspector will document the locations along the project route where yellow star-thistle currently exists. Butte County maintains an ongoing weed control program that is restricted to road right-of-ways, and recognizes that yellow star-thistle is widely distributed within the county both on and off existing road and utility rights-of-way. The County does not have a program for control of yellow star-thistle populations outside of county road rights-of-way. To prevent further spread of yellow star-thistle along the project route, vehicles leaving cross-country portions of the right-of-way will be cleaned thoroughly prior to leaving areas of star-thistle infestations. For example, an equipment cleaning station will be established near the transition from the open grassy understory to the denser vegetation community in the Town of Paradise.

Since yellow star-thistle is already solidly established along the entire southern portion of the project, both on and off the right-of-way, no long-term program is planned to control yellow star-thistle populations along the project route.

Broom

Broom found along the Paradise Memorial Trailway will be removed (cut at ground level) from within the construction right-of-way by the project's vegetation clearing crews. Broom will be removed from the project site and disposed of at an approved landfill or disposal site. The Town of Paradise then plans to implement long-term weed control efforts associated with maintaining the Paradise Memorial Trailway. The project's long-term weed control obligations will be limited to controlling weeds by physical removal within a 36-inch diameter area around each of the woody plant seedlings installed by the project. The Town will undertake long-term management of broom along the remainder of the project route within Town limits.

Himalayan Blackberry

Himalayan blackberry is located within several drainages crossed by the Paradise Area Reinforcement Project. However, the project route does not intend to cause construction-related disturbances near these drainages. Therefore, it is not expected that any of the existing Himalayan blackberries will be removed from along the drainages.

INSPECTION AND DOCUMENTATION

Pacific Gas and Electric Company's restoration consultant or Environmental Inspector will inspect initial planting activities to ensure that proper installation methods are being implemented. After planting is completed, the restoration consultant and contractor will re-inspect the planting area at regular intervals to identify the need for additional weeding or maintenance activities.

During both the initial planting as well as during the maintenance period, the restoration contractor will complete a Daily Planting Record and Daily Maintenance Record for work performed at the site. Records will be submitted to the company at the end of each workweek or as directed by project management. The restoration consultant will verify the species, number of plants, plants per species, and planting conformance. In addition, the restoration contractor will document the amount and type of seed mix applied to each area along the project right-of-way. The restoration consultant or Environmental Inspector will conduct periodic inspections of the seeding operation to verify that the appropriate application rates and methods are being applied.

Pacific Gas and Electric Company will conduct maintenance activities and post-growing season surveys for two years following construction to monitor the success of restoration and revegetation efforts. Areas where maintenance, additional seeding, or planting may be necessary will be identified by the restoration consultant and will be implemented by the restoration contractor.